5: Hurault K, E-5 (1948-1959) 1959 SR8 Bush Negroes SR8
Rucuyen SR12

Comparative Demographic Study of the Oyana Indians and the Boni Refugee Blacks of the Upper Maroni (French Guiana)

[Étude démographique comparée des Indiens Oayana et des Noirs Réfugiés Boni du Haut-Maroni (Guyane française)]

by Jean Hurault

Paris: 1959
Population
Vol. 14, pp. 509-534

Translated from the French by Richard Fort

Human Relations Area Files
1960

[Title page]

5: Hurault--1 K,E-5 (1948-1959) 1959 SR8 Bush Negroes SR8
Rucuyen SR12

Introduction

During the expeditions of the Institut géographique national in French Guiana in 1948 and 1949, we lived in close contact with the Boni Refugee Blacks and the Oayana /Oyana/ Indians of the Upper Maroni. These populations present the remarkable peculiarity of belonging to two entirely distinct ethnic groups while living side by side, leading in general the same way of life, and having the same diet. Historical circumstances have thus joined together in the Upper Maroni the conditions of a rigorous biological experiment which, so far as we know, do not exist so distinctly in the other regions. In fact, wherever two different ethnic groups coexist, they usually do not have either the same habitat or the same way of life; for example, on the coast of Surinam the Indonesians live mostly on the rice plantations and the Blacks in the towns, under quite different conditions of habitat, diet, and hygiene; under these conditions, the differences observed on the level of pathology and demography are difficult to interpret.

Doctor André Sausse, who accompanied us, studied the Boni and the Oayana Indians on the medical level; he submitted evidence that these two populations presented a distinct pathology having profound repercussions on their demographic situation (1). During this period we lacked the time to substantiate these data by a census and by a systematic interrogation of the women. We were able to carry out this work at the close of the expedition for the delimitation of the southern frontier in January, 1957. The data collected have been verified and completed in the course of two other expeditions made for the Office de la recherche scientifique dans les territoires d'Outre-Mer /Bureau of Scientific Research in the Overseas Territories/ (October 1957 – February 1958 and

1. Dr. André Sausse, Populations primitives du Maroni /Primitive populations of the Maroni/, Larose, Paris, 1951.

/509 cont./
October 1958 – January 1959), expeditions whose principal aim was the sociological study of these populations.

/510/

Social Structure and Way of Life

The Boni Refugee Blacks. The Boni are one of the above-mentioned tribes of the Refugee Blacks, reconstituted in the course of the eighteenth century by rebel African slaves who escaped from Surinam plantations (Dutch Guiana).

These tribes (Saramaka, Djuka, Paramaka, Boni) live for the most part along the rivers of the interior of Surinam. They group together a total of 25,000 persons.

With very rare exceptions, the Refugee Blacks are pure Africans. These populations, vigorous and well adapted to the country, have experienced in the course of the eighteenth and nineteenth centuries a remarkable demographic increase, attested to by all the authors. Descended from small rebel groups which could not have contained more than a few hundred women, they are now estimated at more than 25,000 persons.

The Boni of the Upper Maroni, the subject of the present study, number approximately 800, of whom 660 are on the French bank (the villages of Boniville, l'Enfant Perdu, Loka, Asisi, Papaïton, and Kormotibo) and 140 on the Surinam bank (the village of Kotika). These villages were established long ago.

Each of them groups together a matrilineage, i.e., the descendants in the uterine line of one single founding ancestress; certain villages know their genealogy in its entirety back to this ancestress, who must have lived at the end of the eighteenth century. The members of the lineage are united by the cult of the ancestor, which binds them firmly to their natal village and to their land. The social system is based essentially on this cult, the chief of the village being above all the priest of the ancestors.

Strictly speaking, there is no marriage, but only an acknowledged concubinage which entails neither a contract between the

/510 cont./
relatives, nor any power of the man over the woman, nor even household cohabitation. The man and the woman each reside in the village of their maternal kin. The man goes to live with his wife from time to time, providing her with the imported commodities that she needs, notably salt, kerosene, cloth, and utensils, and felling trees for the clearings which she will exploit for the benefit of the household.

Divorce is entirely free. Unions are not very stable, mainly on account of the woman. Numbers of women are divorced four to five times during their lives.

The grand man, chief of the tribe, exercises over the Boni a power which is more religious than political.

The Boni are a pirogue-people. For more than a century they have been living by using their canoes for the benefit of gold-seekers and exploiting miners. The decline of gold extraction is depriving them more and more of their traditional resources. Some of them are emigrating temporarily to the coastal lumberyards. But all of them remain faithful to their villages and to their customs.

/511/
The Oayana Indians (Roucouyennes /Rucuyen/). These Indians of the Caribe /Carib/ ethnic group have had only a few direct contacts with European civilization and still represent without alteration the human type which populated Guiana before the arrival of the Europeans. On encountering the Refugee Blacks, the Indians of the Guianese forest have been steadily and rapidly declining. Estimated at 30,000 at the beginning of the seventeenth century, the Indians of French Guiana are now no more than about a thousand. In addition there must be included in this number 700 persons (Galibi and Arawak) who have been protected by their habitat in the savannas of the coast where malaria is less deadly than in the interior.

The accounts of travelers and the censuses made notably in 1730, 1759, 1787, and 1815 allow one to follow with precision this destruction of the autochthonous population since the first settlement of the Europeans in Guiana (2).

2. Dr. André Sausse, op. cit., pp. 67-98.

R /511 cont./
161 The Oayana of the Upper Maroni in 1958 numbered about 240,
175 of whom 70 were on the Surinam side. About 250 others lived on the
[162] Yari and the Parou in Brazil, altogether some 500 persons. They numbered about 3,000 at the time of Leblond (1788), and the explorer Coudreau around 1890 estimated them again at 1,500. All the authors of the eighteenth and nineteenth centuries have noticed their further decline, but without understanding the cause.

R
361 The Oayana move their villages every ten years on the aver-
433 age. No cult of the ancestors binds them to their land; they are
R only concerned about a favorable place for agriculture and fishing.
621 As far as can be judged, a village used to group together the
613 members of a matrilineage. There were two types of marriage,
582 one endogamous, between cross cousins in the classificatory sense,
591 the other exogamous; in this latter case, the man would leave his group to establish himself among the relatives of his wife;
A nowadays this principle of residence is breached by individualism.
621 Marriage and residence are entirely free. The composition of the
571 villages changes constantly; a simple dispute suffices to cause the
R departure of a faction which goes to join the neighboring village.
178 Nevertheless the social and political decadence have not had any catastrophic influence on the way of life. The Oayana remain
R firmly attached to their beliefs, their language, and their techniques.
244 The Oayana are above all agriculturalists; their very large
262 clearings are cultivated with great care and provide for them the
R essentials of their diet.
433 After agriculture, fishing is their principal resource. Hunting and gathering come next.
R
517 All this activity leaves plenty of free time for finery, dancing, and, above all, doing nothing in their hammocks.

B /512/
A Geographic environment; way of life; diet. The Upper Maroni pre-
132 sents the characteristics of the humid equatorial environment. Lo-
[131] cated at 3° 30' latitude, the country has an annual mean temperature of about 26°. The annual rainfall is about three meters, as against 3.5 meters at Cayenne.

B
R
137
241
/512 cont./

The region is entirely covered by equatorial forest which the inhabitants clear for their crops, practicing a shifting agriculture on burned-over land.

B
R
31
504
968

Life is closely tied to the river, on the edge of which are established villages and crops. They scarcely move except by water. Everybody, man, woman, or child, has his pirogue, and the children learn to paddle at the same time that they learn to walk.

B
R
433

The principal activities of the two populations are agriculture, fishing, and canoeing.

B
R
262

There is scarcely any difference between the dietary resources of the Indians and the Boni. The principal portion is manioc, eaten in the form of cassave (flat cakes cooked on a plate) or of couac (roasted and granulated flour). Then come tubers, yams, dasheem, "Carib cabbage" /taro/ and sweet potatoes, bananas and plantains. The Boni in addition plant mountain rice, from which the yield is small; in return, they eat fewer bananas.

B
[241]
R

The protein ration is furnished essentially by fish, eaten fresh or smoked. The Indians, skillful fishermen, never lack them. Game furnishes a less regular, but important resource.

[226]
B
R
[231]
[439]

Animal husbandry, confined to a few chickens raised mainly to sell, represents only an insignificant part of the diet.

The fat from fish and from animals killed while hunting constitutes the principal portion of lipides. The Boni use in addition, for preparing their meals, a small quantity of maripa palm oil.

Vitamins come from fruit (papaya, pineapple, mangoes), which the Indians eat in greater abundance than the Blacks, from wild spinach, rich in Vitamin A, and palm nuts (awara and caumou), eaten in great abundance during the rainy season.

B
R
146

Neither of the two populations is undernourished. The Indians might have been so temporarily during epidemics, when the adults, having been sick for a long time, were unable to clear sufficient land. But they can supplement an inadequate harvest with a great variety of wild foods that can be gathered.

The diet seems poor in mineral elements and especially in calcium. Traces of rachitis are noticeable among some of the Indian children.

/513/

The scarcity of lipide foods, and, among the Boni, the low consumption of fruit might cause one to fear vitamin deficiencies. In fact, there are no signs of it.

Body hygiene is excellent: Blacks and Indians bathe several times a day and are very fastidious about their persons.

In summary, there is no appreciable difference in the customary activities, agriculture, hunting, and fishing, of the two populations. There is one in economic activity. Among the Boni, who have a greater need for imported objects, the adult men work for wages four to five months per year on the average. These jobs are very laborious and performed under bad dietary conditions, whereas the Indians rest when they are not occupied with their customary tasks, sometimes spending entire days stretched out in the hammock.

The two populations have been in close contact for a long time. The Indian villages farthest downstream have immediate contact with the first crop plantings of the Boni. Without having any tendency to merge (their characters and their customs are too different), Boni and Oayana have maintained regular relations since the end of the eighteenth century, doing a little trade in imported articles exchanged for hammocks and dogs trained for hunting. They often visit each other, and nothing stops the spread of illness from the one group to the other.

In fact, the way of life of the two groups is the same, the environmental conditions have the same influence, and the differences which are observed in the pathology can only be attributed to a different sensitivity with regard to the principal illnesses.

Pathology of the Boni. We shall briefly summarize here the observations of Dr. A. Saune in his work Populations primitives du Maroni.

The pathology of the Boni is characterized by:

-- a resistance to malaria, which means that if the children have had attacks an immunity will develop with age; the size of the spleen diminishes regularly from child to adult. The adults have only episodical attacks which are not serious; in particular

8 /513 cont./
164 the birth rate of the Boni is scarcely influenced by malaria. This is an essential difference between Blacks and Indians.

This immunity, regarded as an hereditary characteristic of the African Blacks, was well known by the Europeans of past centuries. In the seventeenth and eighteenth centuries it was thought that on account of this fact only the African Blacks could furnish a regular force in tropical countries. This is one of the principal causes of the slave trade.

/514/ -- An important impairment by skin affections. The Boni, before the creation of the Maripasoula medical center, showed many cases of pian, which attacked most of the children, leaving infirmities and widespread incapacities in certain adults.

Also observed were numerous cases of American forest cutaneous leishmaniasis (pian-bois), involving ulcers, sometimes very widespread, almost always infected, and able to lead to a terminal cachexia. Finally, 1% of the Boni manifested cases of leprosy in the course of development. The total incidence of the disease was estimated in 1957 at approximately 3%.

8
[8+2]
[161] -- An important invasion of venereal diseases, notably of blennorrhagia, leading to the sterility of a large number of women and stopping the demographic increase.

This aspect of the pathology seems in keeping with the very free morals of the Boni and the instability of their unions.

In 1948 the Boni attributed an important part of the infant mortality to a form of meningitis which they call "pikin nenge siki," "the sickness of the little Blacks"; the symptoms described seem to fit cerebrospinal meningitis.

R
164
114 Pathology of the Oayana Indians. Doctor Douvier, examining the Oayana in 1937, wrote: "The Indian does not show sores like the Negro; the Indian has epidemics."

Doctors who have examined the Indians of the interior in the course of recent years have made agreeing observations on their pathology, which can be summarized thus:

R
164 -- the Indians, in contrast to the Blacks, suffer severely from malaria; no immunity appears among adults, who are more severely attacked than children. The size of the spleen in most cases simply increases in the course of life.

/514 cont./

Among the Indians, deprived of medical aid, malaria leads to organic lesions so serious that some of the adults are semi-infirm, incessantly ill, incapable of sustaining a continuous effort. Any infectious illness causing a high fever can start an attack of malaria which leads to death within a few days.

These almost lightning deaths of young adults are one of the most characteristic aspects of the demography of the Indians of the Guianese forest.

They show a particular sensitivity to epidemic pulmonary diseases, a fact observed a long time ago in all the Amerindian populations. The examination of the archives of Guiana that we made showed that since the seventeenth century travelers have often found Indian villages prey to epidemics of "colds and lung inflammations," which would lead to many deaths.

/515/ It was probably a matter of influenza and post-influenza pneumonia, contracted from the Europeans and the Blacks. These epidemics rapidly decimated those tribes which had made contact with imported populations. In 1760, an officer, M. de Kerlove, meeting on the Camopi one of the first Oayana to enter into relations with the Europeans, asked him if his nation had also been decimated by the "flu." The Indian answered: "No, we suffer only from fever" (3).

3. Bibl. nationale, Manuscrits nouv. acq. fr. 2377, fol. 284.

Undoubtedly it is those illnesses imported involuntarily that have upset the precarious demographic balance of the Indians.

Epidemics of "flu" have broken out frequently among the Oayana, leading each time to the death of several adults. These epidemics have almost always coincided with population movements. One of them was started in 1937 by the passage of the expedition for the delimitation of the Guiana-Brazil frontier. Another at the end of 1948 followed a group move which the Indians had made to Saint-Laurent-du-Maroni.

/515 cont./

These small repeated epidemics have been part, one might say, of the ordinary pathology of the Oayana since their first contacts with the imported populations.

--Cases of dysentery are also observed, probably bacillary, sometimes in the form of minor epidemics. This is a secondary cause of mortality;

--Children show, just as among the Boni, a massive intestinal infestation by hookworms and Anguillula.

The Oayana very rarely have skin diseases; "their tegument is intact. One does not see any mycosis or ulcers among them, nor any dermotropic diseases. Leprosy and pian are unknown among them; even the small wounds which the Indians get in the woods, and which suppurate so frequently among the Blacks, heal quickly, even more quickly than among Europeans, who, however, disinfect their wounds" (4).

4. Dr. Andre Sausse, op. cit., p. 113.

[648] There are no venereal diseases among the Indians because they do not have sexual relations with the other groups.

The rest of the pathology of the Indians shows nothing remarkable. Their disappearance has often been attributed to alcoholism. That is an assertion which does not stand up to examination. Before 1950, the Indians, never having any money, were not in a position to buy rum. With regard to their cachiri (5),

5. Fermented drink prepared from a manioc base; very small percentage of alcohol.

of which they absorb great quantities on the occasion of celebrations, it produces indigestion rather than intoxication; for that matter they do not drink any more of it than in former times when their tribes were numerous and strong.

/516/ Effects of Medical Assistance. Until 1949 the Boni and the Oayana remained very isolated and practically deprived of all medical help. The beliefs of both, attributing illnesses to

B R The beliefs of both, attributing illnesses to
/516 cont./
743 supernatural causes, did not predispose them to turn to European
648 doctors. Moreover, the Saint-Laurent hospital was so far away
[753] (six days paddling downstream) that a seriously ill person had
plenty of time to die en route. The Boni went there only as a last
B R resource and in general at the point of death. As for the Oayana,
not a single one presented himself there before 1950.

744 In 1936-1939 several circuits had been made from the post
648 of La Forestière located at the mouth of the river, but no consistent
[743] medical action had been feasible. Not until 1949 was it possible
B R to create a medical center in the country itself, at Maripasoula.
The populations were visited regularly, and the seriously ill could
[164] be hospitalized on the spot. At the same time systematic spraying
with DDT inside all the huts, destroying the anthropophile
anopheles, changed the environmental conditions considerably;
if malaria has not disappeared, it has ceased, both among the
B R Indians and among the Boni children, to be the principal cause of
morbidity.

743 The action of the medical center has been exercised more on
744 the Boni, who live a few hours by canoe from Maripasoula, than on
648 the Oayana. Among the latter, the principal villages are two days
[484] journey by motorboat upstream amidst difficult waterfalls; the
[753] Indians are often on the move, fishing on the upper courses of
the rivers or visiting their relatives on Brazilian rivers; it has
happened several times that the circuits of the doctors and medi-
cal attendants (one per trimester on the average) do not find any-
R body in the villages; incidentally, the Oayana tend to attribute
all internal ailments to magical causes, consulting willingly only
[844] for wounds. They willingly accept the remedies given on the
spot, but rarely take the initiative of moving a sick person to
Maripasoula; the women continue to have their babies delivered
R in the villages, without any hygiene.

757 Only during the last three or four years has a change in
165 attitude been noticeable among them vis-à-vis medicine; as we
B R shall show below, no notable modification in their mortality has
yet been observed as a result of this fact.

121 The principal interest of this study being to compare the
165 demographic data of two populations before they had been modified

8
Q /516 cont./
121 by the effect of medical care, we shall take 1 January 1950 as the
165 date of reference for the calculation of mortality among the Boni.

/517/

II. – Demography of the Boni

Census. – Estimation of Age.

8
125 Method used. The demographic study of the Boni presents the difficulties inherent in all populations without civil records:

1. Difficulty of determining the ages of individuals;
2. Difficulty of determining for each woman the deceased children in relation to the surviving ones.

8
125 We attempted to establish a local chronology by linking the
123 ages of individuals to events of known date that had stuck in their minds.

More particularly we fixed the ages of the old men from the voyage of the explorer Crevaux (1877) and from the death of the grand man Atato (1891), the ages of middle-aged persons from events which occurred between 1915 and 1924, death of the grand man Ochi (1915), end of World War I (1918), hydroplane accident at the mouth of the Inini (1921), installation of a rose-wood factory (1923).

8
125 The persons born after 1930 were placed without difficulty, for we knew a certain number of them as children or adolescents in 1948.

Starting with a certain number of men whose age could be
8 fixed with considerable accuracy, all the others, men and women,
[829] were placed by comparison. In fact, if the Boni do not know their age, they are able to say that they are, for example, two or three years younger than so-and-so (6).

8
[755] 6. Their attention is brought to bear on these age differences because, if a group isolated in the bush is led to address a prayer to the ancestors for the curing of a sick person, this prayer has to be pronounced by the oldest person.

/517 cont./

125 We believe the ages are determined with a probable error of less than two years for persons less than 30 years old, two to three years for persons between 30 and 60 years old, and three years above 60. But this error has no systematic character, and one may assume that it is eliminated on the average, disturbing the calculations of fertility and of mortality very little.

[161] [162] Census, age pyramids. The census finished on 1 January 1958 included 811 persons, of whom 666 were from villages on the French bank and 145 on the Surinam bank (Kotika). With regard to the latter, we interrogated them individually when they came over to the French side, particularly when they came to attend the celebrations of the end of mourning at Boniville in November 1957. Temporary absentees (less than 5%) were placed by information provided by their nearest relatives. /518/ /Diagram 1 appears here./

We estimate the omissions in the census at less than 2%. These omissions are almost exclusively a matter of adolescents and young orphans or youngsters raised by persons other than their own parents.

[167] Emigration and immigration are very slight, practically zero as far as the women are concerned. Thus the age pyramid really represents the demographic situation of the Boni and lends itself to complementary calculations of mortality.

Interrogation of the women. The women of the villages on the French bank were questioned about the children they had had and lost. An effort was made to place the dead children in relation to the survivors and in relation to the local chronology. The age of the dead ones was determined by comparison with children or adolescents living at the time of the inquiry.

For the dead adults an attempt was made to fix the year of their death in relation to the local chronology.

/518 cont./

162

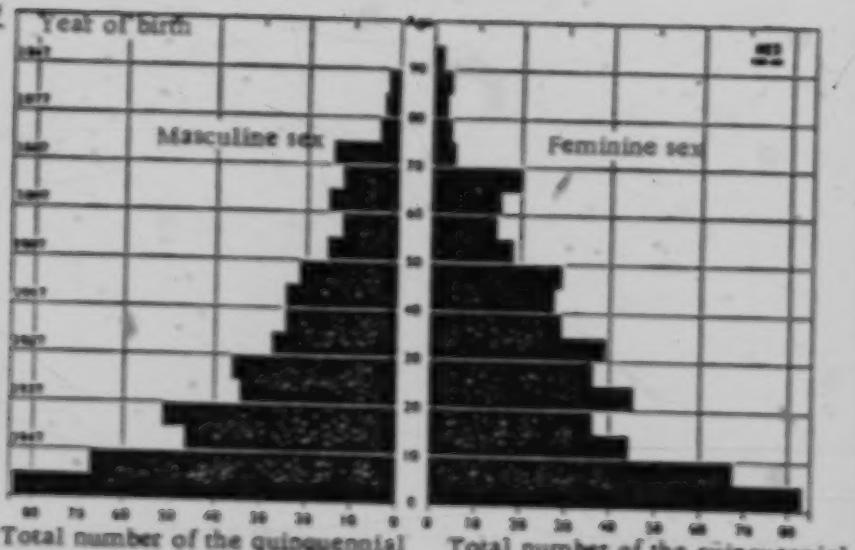

Year of birth
Masculine sex
Feminine sex
Total number of the quinquennial groups
(For a total population of 1000)
Total number of the quinquennial groups
(For a total population of 1000)

Diagram No. 1. Boni Refugee Blacks of the Upper Maroni

Age Pyramid on 1 January 1958

125 We gave up the idea of deducing the number of stillborn infants from the mortality tables, in order to facilitate comparison with the Indian populations where this distinction would not have been possible. We took account of all the children born at term.

For greater certainty we questioned the women twice at an interval of one year (end of 1956 and end of 1957). Those who gave contradictory answers were eliminated. /519/

[162] On 1 January 1958 the women from the villages on the French side born up until 1939 inclusive and married for at least one year were 216 in number, including in that number 17 women from the village of Kotika residing temporarily on the French side; 198 were questioned.

/519 cont./

125 --158 (80%) answered with good grace.

--33 (17%) answered with reticence or gave contradictory answers in 1956 and 1957. Checking showed that they neglected to mention a living child, generally one of their older ones whom they were not raising themselves. In spite of the precautions taken, there are some omissions in the census of the adolescents and young people because of this (7).

[593]

> 7. On the other hand, we never ascertained any dissimulation concerning dead children. On the contrary, the Boni women speak of their deceased children with a certain indifference.

For 28 of these women we were able to reconstruct their lives with sufficient precision by interrogating contradictorily the husbands and the older brothers of the same mother. The five others were eliminated:

7 (3%) obstinately refused to answer without giving any justification for their attitude.

[484] Eighteen women could not be added, this being due to the continual moving of the Boni between their villages, their crop plantings, and their fishing places.

We took into account 7 women who died before 1957, whom we had been able to question in the preceding years.

[163] All in all, we have preserved 193 records of women having had 747 children, of whom 472 had survived as of the first of January 1958.

/519 cont./

128 163 Fertility. We have classed the women, according to the year of birth, into four categories, for fertility has varied considerably in the course of time. The study has been made by five-year age-blocks. The table below /see p. 16 / shows the cumulative fertility (total of figures obtained for the various age-blocks from 15 to 50 years of age). For the women of categories three and four, the number obtained is the result of an extrapolation.

842 Among the Boni there is no custom leading to a diminution of fertility, and the voluntary restriction of births is unknown.

163 164 [177] The vertical fall of fertility between categories one and two results from the invasion of venereal diseases, which seems to have coincided with the period (1920) when the search for the balata brought into the interior a heavy traffic of adventurers accompanied by numerous prostitutes. The very free morals [231] of the Boni favor the propagation of the illness, which, since that time, has not ceased its ravages, stemmed only, but not eliminated, by the medical effort of these last years.

/520/

163

Category	Born	Cumulative Fertility	Rate of Sterility	Age when half the children were born
		%	%	Years
1	1850—1895	7.30	5	31
2	1896—1915	3.83	21	27
3	1916—1925			
4	1926—1938	0.52	15	27 m

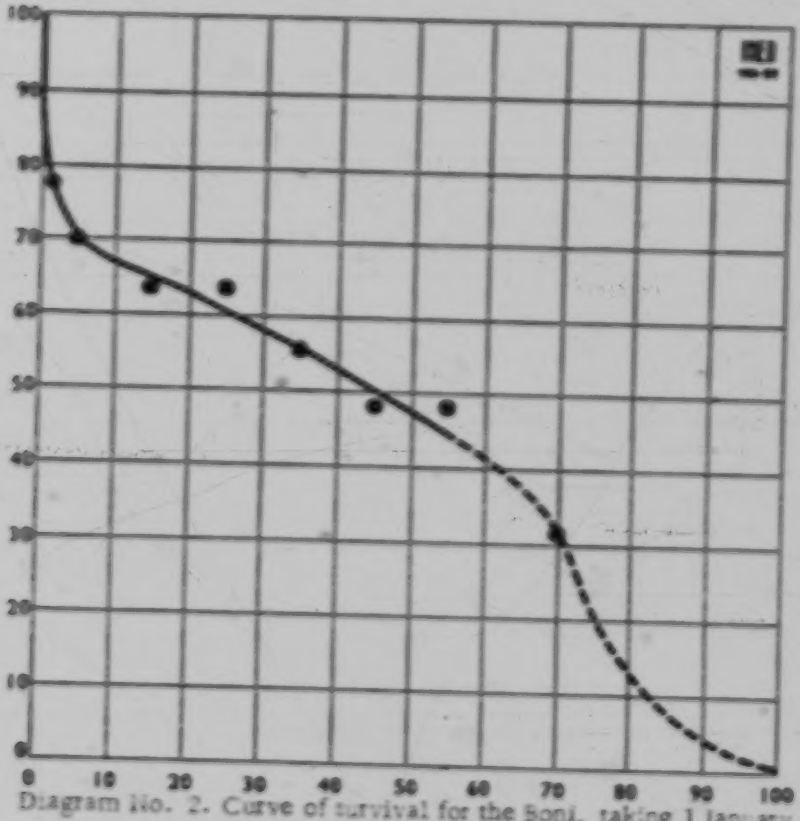


Diagram No. 2. Curve of survival for the Soni, taking 1 January 1950 as the date of reference.

163 128 8. In the evaluation of the net rate of reproduction (cf. p. 523), the average age should be brought in, there is the danger, however, of this being overestimated as a result of errors in the ages; this is why we preferred to substitute for it the median age.

9. The calculation with regard to the women of category 4 could not, in view of their age, give precise results. We preferred to adopt the figure for the preceding category.

/52/

165 Mortality. The principal interest of this study is to establish the
128 curve of survival showing, for 100 children born alive, the number surviving at one year, five years, ten years, etc., until the extinction of the group. The life expectancy at birth is given by this curve.

For the Boni, we can make this study with the assumption that the lives of the individuals stopped on the first of January 1950, the date on which one may consider that the conditions which influence mortality have changed, above all as far as the children are concerned.

The study of the mortality of the children born since the first of January 1950, dealt with in part, will furnish useful elements of comparison.

Establishment of the mortality table. Taking up again the records of the 193 women whose lives are completely known to us, and including the children who died in early infancy (10), we have marked down all their children, year by year, on a table.

165 Table of Mortality Referring to 1 January 1950 (10)

Year of birth	Deceased children			Surviving on 1-1-50	Surviving	Average age on 1-1-50	Deceased between 1-1-50 & 1-1-58
	0-1 year	0-5 years	More than 5 before 1-1-50		Total children	years	
1888 – 1899 inclus.	12 (36 %)	13 (39 %)	5	16	16/33 – 48 %	50	2
1900 – 1909 inclus.	13 (28 %)	20 (37 %)	8	26	26/54 – 48 %	45	1
1910 – 1919 inclus.	21 (34 %)	30 (35 %)	8	47	47/85 – 55 %	35	1
1920 – 1929 inclus.	20 (31 %)	28 (31 %)	7	50	50/94 – 53 %	25	3
1930 – 1939 inclus.	24 (34 %)	33 (30 %)	8	66	66/106 – 63 %	15	3
1940 – 1949 inclus.	40 (33 %)	.....	1	122	122/175 – 70 %	5	8

165 10. We were particularly careful in asking about chil-
128 dren who died in early infancy, an important cause of
[856] error in populations without civil records. The age of
[862] the children at the time of death has been estimated according to the following guidelines based on the study

5: Hurault--17a KE-5 (1948-1959) 1959 SR8 Bush Negroes SR8

/521 cont./

165 10. (cont.)
128 of the development of ten children born in
856 1956 and 1957: sitting up, 7 months; be-
862 ginning to walk, 1 year (a remarkably clear guideline among the Boni); end of weaning, 14 to 18 months. Beyond that, the ages were estimated by comparison with children living at the time of the inquiry.

165 The survival curve results directly from these values. It shows the high mortality of children (30% during the first five years).

/522/

165 It is not possible to obtain directly a value for the survival
121 rate for ages beyond 55 years, but it is possible to obtain an approximate value from the age pyramid. Calculation (11) gives: proportion surviving at the age of 70: 30%.

11. The calculation consists of comparing the lengths of the segments of the average curve of the pyramid corresponding to the ages 55 and 70, having taken into account the increase in births between 1888 and 1903, deduced from the rate of reproduction.

165 Table of Mortality Referring to January 1958

Year of birth	Deceased before 1-1-50	Deceased between 1-1-50 & 1-1-58	Surviving on 1-1-58	Proportion Surviving	Average age on 1-1-58
				%	Years
1888-1899 inclus...	18	2	14	41	65
1900-1909 inclus...	28	1	25	46	54
1910-1919 inclus...	38	1	46	54	44
1920-1929 inclus...	35	3	56	59	24
1930-1939 inclus...	40	3	64	59	24
1940-1949 inclus...	53	8	114	65	14
1950-1957 inclus...	.....	45, of which 35 under 1 year	154	77.5	4

5; Sureault--19 KE-5 (1948-1959) 1959 SRA Bush Negroes SRS

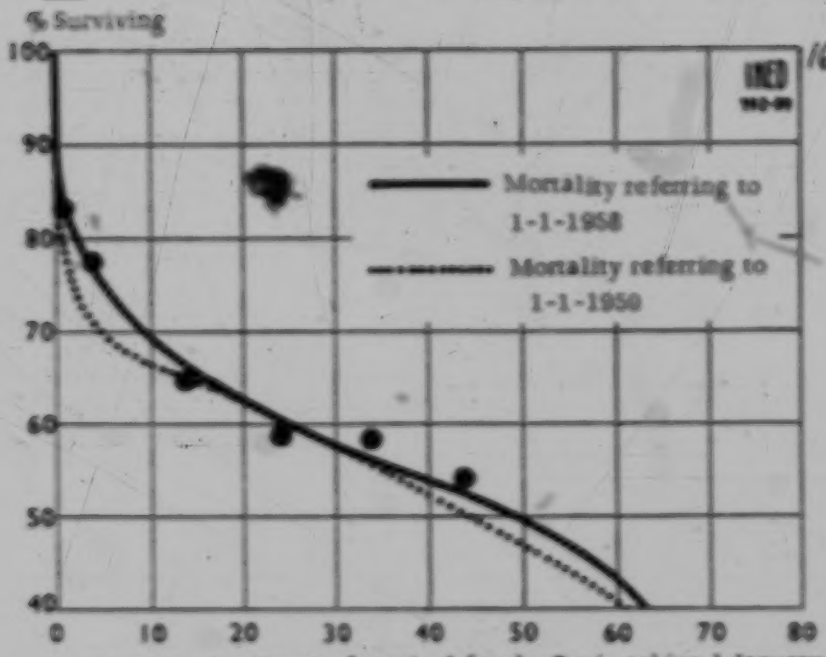
/522 cont./

165 Life expectancy at birth is about 43 years. It is a remarkably high value for peoples deprived of medical help, and notably superior to that noted in Black Africa.

[757] Evolution of mortality under the influence of medical assistance. It is interesting to show the extent to which mortality has been influenced by medical assistance since 1950. For this purpose we shall reconsider the same observations, taking into account the deaths which intervened between the first of January 1950 and the first of January 1958, the date to which we shall relate the calculations.

The survival curve obtained by mapping the calculations on the first of January 1958 differs slightly from the preceding one, which principally concerns the mortality of children. The mortality from 0 to 1 year is given by 35/199 = 17.9% instead

/523/



165

Diagram No. 3. Curve of survival for the Boni, taking 1 January 1958 as the date of reference

of 23%. The mortality from 0 to 5 years has fallen from 30% to 24%. The mortality of adults has been slightly reduced. As a whole the life expectancy of the Boni appears to have increased by approximately one year during the period considered.

Increase of population. From the survival curve it is possible for us to / calculate the rate of reproduction of the population.

Women born from	Rate of reproduction	
1900 - 1905	$0.685 \times \frac{7,30}{100} \times \frac{37}{100} = \frac{201}{100}$	31 years
1905 - 1915	$0.685 \times \frac{3,80}{100} \times \frac{58}{100} = \frac{105}{100}$	27 years
1916 - 1925	$0.685 \times \frac{4,50}{100} \times \frac{59}{100} = \frac{185}{100}$	27 years

/524/

161 Thus during the period 1895 to 1925, the Boni population
[128] doubled with each generation. These results are confirmed by
(173) the study of the genealogies. The present-day Boni, with the
[613] exception of about 5% of them who belong to recently founded lineages, are descended by known filiation from seven women who lived at the end of the eighteenth century.

It is possible that before the period to which this inquiry refers epidemics were produced and struck certain villages in particular, destroying entire lineages. In fact we cannot say anything certain about the evolution of the population before 1890. Let us only remember that this rate of reproduction of 200% per generation of 31 years represents the normal rate for the Refugee Blacks, in the absence of large epidemics and of venereal diseases and before any medical aid.

During the period 1925-1942, the Boni population did not vary (rate of reproduction $\frac{105}{100}$).

Since 1940, it has been increasing slightly, by 25% per 27 years, that is just under 1% per year.

163 Birth rate and mortality rate. Demographic balance. From 1
165 January 1956 to 31 December 1957, i.e., in two years, 39 children were born in the villages on the French bank (660 persons), and 21 persons died (including 5 children born during this period).

Rate of birth: 2.9% per year.

Rate of mortality: 1.6% per year.

161 Rate of increase: 1.3% per year.

The rate of increase of 1.3%, which corresponds incidentally to the theoretical calculation indicated above, is very much below that of the population of Cayenne and of the communes of
[164] the coast. If one considers that before 1920 it reached the remarkable value of 3% per year, one realizes the extent of the disaster brought about by venereal diseases.

/524 cont./

165 Factors influencing the demographic characteristics of the Boni. Life expectancy at birth for the Boni is not only 12 years higher than that of the Indians, but is also considerably higher than that of the African peoples from which they came.

This fact can be attributed to two causes:

164 182 1. The Boni live in a more salubrious environment than the African forest and have better living conditions. It seems likely that the Guianese forest, apart from malaria, presents few causes of bad health and is relatively favorable to man: the absence of trypanosomiasis permits men /525/ to gather on the banks of the large rivers, generously exposed to the air and to the light. The small number of the Boni and their dispersion over a vast territory stands in the way of the transmission of diseases by drinking water. In fact the water is generally healthy. Dysentery and parasitosis are considerably rarer and less serious than in Africa;

14 162 2. The Boni are a selected population. This is a very important aspect of their demography.

The slaves were the object of a systematic selection: the purchasing commissions of the rich colony of Surinam allowed only individuals of good health and constitution to pass. A second selection took place at the time of the formation of the tribes of Refugee Blacks. More than from a massive rebellion the rebel groups increased in size by the addition of those who, from year to year, escaped at the peril of their lives. Without any doubt those who preferred combat to servitude were the most vigorous and bravest. Voluntary migrations have always been a factor of selection: one may suppose that a migration which took place in such circumstances was accompanied by a particularly rigorous selection which, in spite of the time which has passed (eight generations), continues to influence the physiological [734] characteristics of the Refugee Blacks. Notably it can explain [157] the vigorous constitution of the Boni (there are only two congenital invalids out of 810 persons) and their exceptional qualities of physical courage and initiative.

5: Hurault--23 E-5 (1948-1959) 1959 SRS Bush Negroes SR9
Ruuyen SR12
Emerillon SR8

/125 cont./

III. – Demography of the Oayana Indians

B
125 The inquiry covered the five Oayana villages on the French
162 bank, grouping together 170 persons in December 1957. We
361 were able, moreover, to interrogate most of the women of the villages on the Surinam side, with the result that the actual dimension of the group studied comes to approximately 240 persons (12).

E
101 12. In January 1959 we studied the
125 Oyampi and Emerillon Indians of
161 Oyapok, about 190 in number, whose
E demographic characteristics are very
128 close to those of the Oayana. The data obtained, compared to those concerning the Oayana, are indicated below.

R
621 Conditions of the inquiry. The Oayana villages do not have a
166 stable population; a simple disagreement suffices to provoke the departure of a faction, which goes to join another village.
R About half of the Oayana studied here came from the Yari (Brazil)
758 during the years 1951 and 1952 and have benefited from medical
[166] help only since that time. We can therefore acknowledge that the total population has benefited from medical care since 1951.
R Since 1952, even if the internal composition of the villages
161 has varied, we are dealing on the whole with the same population, which may be regarded as relatively stable.

R /526/ The inquiry, conducted at three times (December
125 1956, December 1957, and November 1958), allowed us to
[101] cover the whole group except for some units (absent on a journey
[484] to Brazil).

B The determination of the ages has been made by comparison
R with the Boni. Oayana and Boni, acquainted since childhood, can
[648] say with precision which ones are close to their age.
[829] Historic guidelines have also been used, notably from the
R voyage of the explorer Laveau, 1913-1915.
[175]

/526 cont./

The determination of the ages of the Indians born in Brazil is more uncertain, and for some of them we had to be content with apparent ages.

In November 1958, thanks to the authorization granted by the authorities of Surinam, we were able to visit the two villages on the Surinam side and question the women; but we were not able to make an accurate census of these villages, some of the men being on a journey.

The interrogation of the women about dead and living children was conducted in the same way as among the Boni. They all replied with good grace.

The Indians were interested in the inquiry and answered with more precision than could have been expected. Everything which concerns children is registered in their memories with extreme care. They are capable of saying with certitude: "When X died, I was this tall, Untel was that tall." The checking that we were able to do confirms the reliability of their memories.

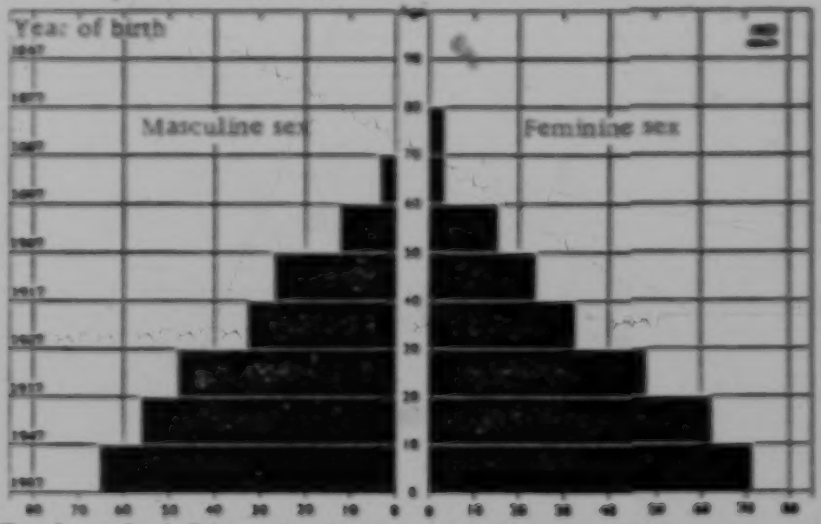

Year of birth
Masculine sex
Feminine sex
Total number of the quinquennial groups
(For a total population of 1000)
Total number of the quinquennial groups
(For a total population of 1000)

Diagram No. 4. Age pyramid for the Oayana Indians of the French bank of the Maroni on 1 January 1958

/827/

162 The age pyramid for the Oayana, inferred from the census
[165] of the villages of the French bank, terminated on the first of January 1958, presents a remarkable regularity. Its rapid decrease in terms of age is noticeable: there are only three persons over 60 years of age out of a total of 169.

163 Fertility. The purpose of this study is to show the fertility
[121] before any kind of medical aid, and, on the other hand, to establish if it has varied since the Oayana have been receiving care.

163 The most rigorous method would consist of establishing the
128 table of fertility by assuming that the lives of the women stopped on the first of January 1951. But the population studied is not large enough and includes too few women of mature age for a precise determination to be reached in this way. We preferred to divide the women into two categories:

-- those who in 1951 had reached the age when half of the children had already been born (28 years old), i.e., women born up to and including 1923. It may be admitted that their subsequent fertility has been very little influenced by the care received.

-- the women born from 1924 to 1943 inclusive.

In view of the reduced total of the group studied, it did not seem useful to distinguish between children born dead and children who died a few days after birth.

163 The study of fertility according to age leads to the following results (average number of children per quinquennial period.)

	13-17 Years	18-22 Years	23-27 Years	28-32 Years	33-37 Years	38-42 Years
(Women born up to 1923 inclusive): Number: 36	0.22	0.70	0.86	0.75	0.46	0.38
(Women born from 1924 to 1943 inclusive): Number: 34	0.47	0.75	1.00	-	-	-

/527 cont./

163 Allowing 0.15 for the average number of children beyond 42 years of age, for which we were unable to obtain a precise determination, we obtain for the women born up to 1923 inclusive:

-- average cumulative fertility, 3.62,

-- age at which half of the children have been born, 28 years.

[752] These facts characterize the fertility of the Cayana women

[124] in the absence of all medical aid. This fertility is very low. It results from purely physiological causes, birth control not being practiced.

/528/ The women born after 1923 show, for the first three five-year

[752] blocks, an increase in fertility of about 15%. It is evident that the medical effort of the last eight years has clearly modified the demographic data on this point.

165 Mortality. We classed by year of birth the children of these 70
128 women. We related the calculations to the first of December 1958, for, as we shall show later on, the mortality of the Cayana has only been slightly influenced by the medical effort of these last years.

165

Children born from	Dead children: before 1 year	from 1-5 years	after 5 years	Surviving on 1-12-58	Proportion	Average age
						Years
1924-1933 inclus.....	7 (21%)	4	8	14	14/33=43%	30
1934-1943 inclus.....	10 (20%)	6	8	32	32/46=67%	20
1944-1953 inclus.....	6 (13%)	5	1	34	34/46=72%	10
1954-1958 inclus.....	8 (25%)	2	....	21	21/31=68%	2 1/2

Births prior to 1924 are not sufficiently numerous to enter into the calculation. But we can obtain approximate values from the proportion surviving beyond 30 years of age, from considerations based on the age pyramid:

-- proportion surviving at 42 years of age: 28%,

-- proportion surviving at 56 years of age: 11% (13).

[122] 13. To obtain this last figure, a comparison was made of the segments of the average curve

R /528 cont./

165
128

13. (cont.)
of the age pyramids relative to the ages of 28 and 56 years, taking into account the rate of reproduction of 83% per generation of 28 years.

B
R
165

It can be seen that there remain practically no survivors at 70 years of age, whereas among the Boni there still remain 30%.

Life expectancy at birth, deduced from this curve, is 31 years (Boni: 43 years.)

The mortality curve is very different from that of the Boni, showing a completely different appearance vis-à-vis the geographic environment. The mortality from 0 to 5 years appears comparable in the two populations (about 30%). But whereas among the Boni the curve shows a distinct plateau between 5 and 25 years, nothing similar is seen among the Oayana; the

R
165

survival curve /529/ /Diagram 5 appears here/ plunges rapidly without showing any plateau. The Oayana have, generally speaking, the same probability of death at every age. This high mortality of adolescents and young adults is a remarkable characteristic, clearly linked to the particular pathology of the Indians of the forest.

R
161

Rate of reproduction. The proportion surviving at 28 years of age, the age at which half of the children have been born, is about 47%.

The rate of reproduction is thus:

$$0.485 \times \frac{3.62}{100} \times \frac{47}{100} = \frac{83}{100} \text{ in 28 years.}$$

Thus 100 persons are replaced in the following generation by only 83. The whole drama of the Indians of the Guianese forest is expressed by this figure.

/529 cont./

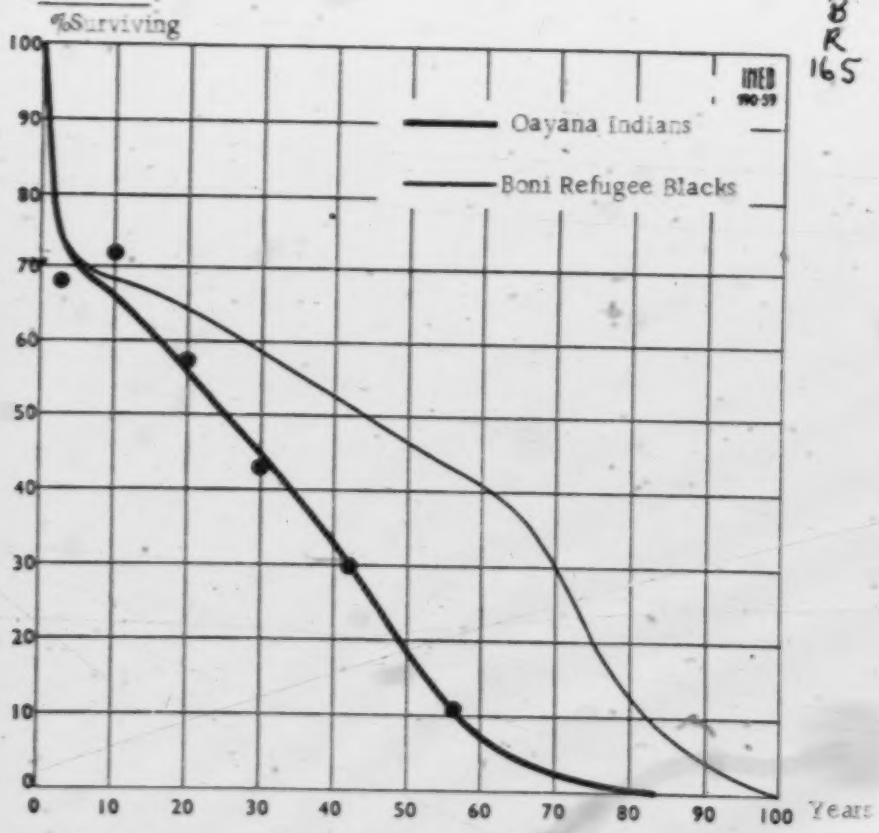


Diagram No. 5. Curve of survival for the Oayana Indians

/530/

This rate of reproduction of 83% characterizes their behavior vis-à-vis the geographic environment modified since the arrival of the Europeans by their contribution of new microbial germs, just as 200% characterizes the behavior of the Refugee Blacks.

Before any kind of medical aid the group described here was dying out at the rate of 0.6% per year, i.e., it decreased on the average by one person every year.

This rate corresponds to the extinction of half in 103 years. It is not quite adequate to explain the reduction of the Oayana from 3,000 around 1780 to 500 in 1958. It is probable that at the moment of the first contact with the Europeans, at the end of the eighteenth century, the Oayana must have been decimated by the epidemics more severely than in our day.

/530 cont./

125 Rate of birth and mortality. In October 1948 we had set up a de-
162 tailed census of the Oayana who were at that time on the Litani French bank and numbered only 65.

165 From October 1948 to the end of November 1958, that is to
163 say, in an interval of 10.1 years, 18 of these 65 persons died. The women and girls of the group gave birth to 21 children, of whom 7 died. From these figures the approximate value of the birth rate and mortality rate can be deduced:

-- birth rate: 3.2% per year.

-- mortality rate: 3.8% per year.

161 Thus the group has diminished by four units in 10.1 years, which corresponds to 0.6% per year, a rate exactly identical with the one which the preceding calculation gives us.

161 It could be deduced from this figure that the medical effort
758 of these last years has in no way influenced the destiny of the Oayana Indians. Nevertheless the figures of the last two years, covering the total of 170 Indians living in 1958 on the French bank of the Litani, show a clear improvement.

163 For the whole of this group, from the first of January 1957 to
165 the first of December 1958, i.e., about 1.9 years, 16 births have been recorded as against 11 deaths.

161 Thus it seems, insofar as one can draw a conclusion on the basis of such a brief period of time, that since 1956 the demographic balance of the Oayana has changed direction. But the result obtained remains unstable, and if the effort were to slacken, a rapid return to their previous situation would be seen.

Future of the Oayana. Thus the Oayana reach only a demographic
[178] equilibrium. Nevertheless their sanitary conditions have improved in striking fashion, for those who knew them in 1948-49.
[164] Malaria has declined considerably, and the population of the vil-
[14] lages, children as well as adults, gives the impression of health and robustness.

5: Hurault, -30K,E -5 (1948-1959) 1959 SR8 Bush Negroes SR5
Rucuyen SR12
Emerillon SQ 8

R 161 R [172] A [164]

/531/ The improvement of the sanitary situation would have been expressed earlier and more distinctly in the demographic statistics if other disastrous influences had not intervened. Since 1949 the Oayana have been more frequently in contact with the Europeans, more often visited. This has resulted in the introduction of new diseases, notably tuberculosis, which did not exist among them prior to 1949 (14) and of which at least three cases could be observed in 1958.

14. Dr. Andre Sausse checked it at that time by skin tests, which were all negative.

The Oayana continue to be an unstable population which it is important to keep in relative isolation. The worst danger in this regard would be for them to become an object of tourism. They are already visited too often, above all from the French side, by irresponsible travelers, whose passing has as principal object the development of mendicity, when it is not expressed by an influx of microbial germs; organized tourism would very probably lead to their destruction.

Conclusion

E R 16

The Guiana Indians of the Amazon forest and the other tribes. We shall summarize in the table below the demographic data relative to the Oayana Indians, on the one hand, and to the Oyampi and Emerillon of Oyapok on the other.

Designation	Oayana	Oyampi and Emerillon
Cumulative fertility	3.6%	4.2%
Life expectancy at birth	31 years	30.5 years
Annual mortality rate	3.8%	4%
Annual birth rate	3.2%	4.2%

/531 cont./ Thus these two populations, separated by hundreds of kilometers and having had practically no contacts for centuries, show very similar demographic characteristics.

From all the evidence, these characteristics are linked to innate biological characteristics; it is infinitely probable that the ensemble of the Indians of Amazonia, belonging to very closely related anthropological groups, has had and still has, generally speaking, the same destiny. Wherever Indian groups show a positive demographic balance, one may suppose that the conditions of the environment are quite different. This is notably the case for the Galibi and Arawak Indians of the coast of the Guianas. There is no doubt that the alluvial zone along the coast is less malarial than the interior of the country (15).

15. This fact is notably illustrated by the history of white colonization in Surinam in the eighteenth and nineteenth centuries. The colonists imported from Europe were unable to support themselves and to found families except on the coastal strip. The colonization of the high ground, attempted several times, has always failed because of malaria.

/532/ These considerations enable us to understand why the Amazon forest, on the whole more favorable to man than the African forest, shows this aspect of "human wilderness" attested to so often. The solution of this problem is simple: Amazonia is only a wilderness to the extent that it is inhabited by Amerindians. These populations, who manifest a very poor adaptation to the conditions of life in the equatorial forest, have only been able to maintain themselves there in a precarious equilibrium, despite the antiquity of their settlement, going back in all probability several millenniums (16). Here and now, the rivers populated by

16. No precise study has been made on this point with regard to the interior of the Guianas. But it is enough to observe that the gold-seekers

ER /532 cont./

16 16. (cont.)
182 frequently find Indian stone axes under 5 to
172 6 meters of alluvia.

B Here and now, the rivers populated by
16 the Refugee Blacks offer the most striking contrast to the rest of
182 the Amazon forest.

If no social or political factor hindered their development, the populations of African origin would doubtless finish by gradually replacing the other populations of Amazonia, with the exER ception of the Asiatics established on the coast.

161 The factors which we have brought to light in studying the
174 Oayana and Oyampi Indians of Guiana suffice to explain the gradual extinction of the Indians of the Amazonian forest since their first contacts with the Europeans and the Blacks; the violence of which they must have been the object from time to time, as well as wars between tribes, have played only a quite secondary role.

It is not difficult to imagine what the demographic characteriER stics of the Indians of the forest might have been before the arrival
[165] of the Europeans. It may be imagined that in the absence of the epidemic lung diseases, the average life span was somewhat greater: perhaps 50% of the individuals instead of 45 reached the age of maximum fertility, and the cumulative fertility was as high as 4.5 instead of 4, due to a rather better state of general health. Under these conditions, in spite of malaria, the populaE tion would maintain itself; it could even increase slightly.

161 This point of view is illustrated in striking fashion by the ob165 servations made among the Oyampi Indians of Oyapok, a group
[758] which has had practically no regular medical care. In this group
[163] from October 1947 to January 1948, 57 deaths as against 60 births are noted. Out of these 57 deaths, at least 11 have been caused by epidemics of influenza or of pneumonia (17). If the Oyampi

17. From 1947 to 1959 there were three or four of these epidemics among the Oyampi, striking one or two villages each time and causing the death of some adults. This is part of the ordinary

E /532 cont./
161
165 17. (cont.)
pathology of the Indians. The large epidemics causing numerous deaths have not reappeared for a century; they were the result of illnesses of recent introduction.

had been preserved from these illnesses, their demographic balance, in the absence of any medical help, would have been largely positive.

6
R /533/
16 Biological characteristics and social behavior. In comparing the
[758] Boni Refugee Blacks and the Oayana Indians of the Upper Maroni, populations leading the same kind of life to a considerable extent, both deprived of any medical aid before 1950, we came
B to the following conclusions:
16 1. The Boni Refugee Blacks showed remarkable fertility and longevity. Life expectancy at birth before 1950 reached 43 years. The average number of children per woman over 55 reached 7.9 for the period before 1920. The Boni population increased 3% per year.

These remarkable characteristics can be explained by the resistance to malaria which the African Blacks possess, and by the fact that the Refugee Blacks descended from a double selec-
R tion.
16 2. The Oayana Indians, on the contrary, show low fertility (3.7 children) and a life expectancy of only 31 years; until these last years they were dying out at a rate of approximately
R 0.6% per year.
161 These conclusions are confirmed by the historic data which
175 show the Oayana regularly decreasing in number since their first
R contact with the Europeans, passing from 3,000 at the end of
[165] the eighteenth century to less than 500 in our day. The extinction of the Indians can be attributed to their great sensitivity to malaria and to pulmonary illnesses.

B
R
121 /533 cont./

Thus the behavior of a human group, its fate as a people, and its very existence appear to be determined to a large extent by hereditary biological characteristics. This notion was seen clearly enough at the beginning of this century, but it has never been the object of thorough studies, the conditions for an incontestable experiment not being found together. Repudiated in the name of theoretical principles by the train of thought which has animated sociology for the past several decades, it has ended up by being completely lost from sight. Present-day sociology no longer takes into consideration the biological facts peculiar to the groups which it studies; one currently speaks of cycles of civilization, of laws of social change, of acculturation, etc., as if social facts had their own life and their own evolution, independent of the supposedly identical and interchangeable people. It is as though one claimed to study the psychism of the human being without taking his body into account, denying the influence of sex, age, sickness. Some have even managed to maintain that man is in all respects the product of the society from which he comes.

B
R
161
14
182 In the case studied here the falsity of these theories is obvious. If the Indians disappear wherever the Blacks establish flourishing societies, it is because their biological characteristics are not suited to the conditions imposed by the geographic environment, whereas those of the Blacks are to the highest degree.

Seen from this angle, the fate of the Indians of the Amazonian forest becomes clear; their social behavior and in particular their collapse upon contact with European civilization find an explanation.

B
R
[177] /534/ The relations of the Indians with the Europeans of past centuries have been equally influenced by their biological characteristics. Their inaptitude for prolonged effort came in part from their physical weakness. When the Blacks and the Indians of the Amazonian forest have been employed side by side for years as soldiers and porters, there can be no doubt on this point. The Black is a force of nature. The Indian of the great forest, often full of good will, is betrayed by his physical powers.

B
R /534 cont./

14 In the whole of the Amazonian forest these facts have been
16 observed since the seventeenth century and have led to the re-
182 placement of Indians by slave manpower imported from Africa.
114 The course taken in denying the biological realities and wishing to find at any cost a purely sociological explanation has inspired in recent years an ingenious explanation by several authors:

The success of African manpower was, according to them, due to the fact that the Blacks had a civilization closer to that of the Europeans, whereas the Amerindians were more hunters-fishermen than agriculturalists.

B
R
[105] For any observer of good faith, the Indians of Guiana and
R the Blacks of the forests of the Congo and Gabon are largely
[433] on the same technological and cultural level. The Indians are
[361] certainly cultivators just as experienced as the Negroes; is one to forget that it was they who taught the rest of the world the greater part of the important tropical crops: manioc, maize, cotton, tobacco, and so many others? Hunting and fishing for them is only a secondary means of support; it is their instability,
R their lack of attachment to the soil, which may create an
[136] illusion on this point. It can be explained to a certain extent
[361] by the small size of the kinship groups; an ecological factor which does not exist in Black Africa must also be taken into account, the manioc ant, which swarms in particular in the zones habitually cultivated, promoting a seminomadism (18).

B
[136] 18. This factor plays only a secondary role,
[361] since the Refugee Blacks despite the manioc ant, maintain villages of permanent residence, only changing their crop plantings, but it is certain that it promotes the dispersion of the groups and seminomadism.

R
14 These considerations do not pretend to give a complete ex-
16 planation of the social behavior of the Indians of the Amazonian
182 forest. The biological characteristics of the group are only one of the factors of this behavior, parallel to many others, notably

/534 cont./

14 ecological and historical ones. But it is important to bring out
16 the primary consideration; it is because they have not been
182 taken into account that the "civilizing" action carried on for
[114] more than three centuries among the Indians of Amazonia has led everywhere to defeat.

Jean Hurault.